APPENDIX C
PENDING CLAIMS AS OF MARCH 19, 2003
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1. (amended) A method of detecting an antigen of interest in a sample comprising:

contacting the sample with a multispecific molecule, said multispecific molecule being capable of simultaneously binding the antigen of interest and a labeled detection probe, and allowing an antigen-multispecific molecule complex to form;

contacting the sample with a labeled detection probe, wherein said detection probe comprises at least two molecules of a detectable label, for sufficient time to form an antigen-multispecific molecule-probe complex; and

detecting the labels of the antigen-multispecific molecule-probe complex.

2. (amended) The method of claim 1, wherein said antigen of interest is selected from the group consisting of a drug antigen, a tumor antigen, a viral antigen, a bacterial antigen, a hormone, a plasma protein, a plaque antigen, a hapten, and a steroid.

3. (amended) The method of claim 2, wherein said tumor antigen is a breast, prostate, brain, liver, kidney, colon, pancreatic, stomach, or lung cancer tumor antigen.

4. (amended) The method of claim 2, wherein said viral antigen is a hepatitis type A, hepatitis type B, hepatitis type C, influenza, varicella, adenovirus, herpes simplex virus type I (HSV-I), herpes simplex virus type II (HSV-II), rinderpest, rhinovirus, echovirus, rotavirus, respiratory syncytial virus, papilloma virus, papova virus, cytomegalovirus, echinovirus, arbovirus, hantavirus, coxsachie virus, mumps virus, measles virus, rubella virus, polio virus, human immunodeficiency virus type I (HIV-I), human immunodeficiency virus type II (HIV-II), picornaviridae, enterovirus, caliciviridae, Norwalk virus, Dengue virus, alphavirus, flavivirus, coronavirus, rabies virus, Marburg virus, ebola virus, parainfluenza virus, orthomyxovirus, bunyavirus, arenavirus, reovirus, rotavirus, orbivirus, human T cell leukemia virus type I, human T cell leukemia virus type II, simian immunodeficiency virus, lentivirus, polyomavirus, parvovirus, Epstein-Barr virus, human herpes virus-6, cercopithecine herpes virus 1 (B virus), or poxvirus viral antigen.

5. The method of claim 2, wherein said hormone is thyroid stimulating hormone (TSR) or human chorionic gonadotrophin (hCG).

6. The method of claim 2, wherein said plasma protein is a fibrin degradation product (FDP), a C-reactive protein (CRP), a carcinoembryonic protein, a-fetoprotein (AFP), or a carcinoembryonic antigen (CEA).

7. The method of claim 2, wherein said hapten is angiotensin I, vasopressin, somatostatin, atrial natriuretic hormone, endoserine, luteinizing hormone releasing hormone (LH-RH), kassinin or other peptides.

8. The method of claim 2, wherein said steroid is progesterone, testosterone, cortisol or another steroid.

9. The method of claim 1, wherein said sample is a sample from a living organism or an inanimate object.

10. The method of claim 9, wherein said living organism is a human patient.

11. (amended) The method of claim 10, wherein said sample is tissue, blood, saliva, urine, or plasma from a human patient.

12. The method of claim 1, wherein said assay is conducted *in vitro.*

13. The method of claim 1, wherein the method can detect about 2×10^{-16} moles of the antigen present in the sample.

14. The method of claim 1, wherein the method can detect about 2×10^{-18} moles of the antigen present in the sample.

15. The method of claim 1, wherein the method can detect about 2×10^{-21} moles of the antigen present in the sample.

16. The method of claim 1, wherein said detection probe comprises a polymer backbone.

17. The method of claim 16, wherein said polymer backbone is polylysine.

18. The method of claim 1, wherein the detection probe is labeled with a radiolabel.

19. The method of claim 1, wherein the detection probe is labeled with a flourescent label.

20. The method of claim 1, wherein the detection probe is labeled with an enzymatic label.

21. The method of claim 20, wherein said label is horseradish peroxidase.

22. The method of claim 1, wherein the detection probe is paramagnetically labeled.

23. The method of claim 1, wherein said detection probe is labeled with at least 9 molecules of a detectable label.

24. The method of claim 1, wherein said detection probe is labeled with at least 12 molecules of a detectable label.

25. The method of claim 1, wherein said detection probe is labeled with at least 18 molecules of a detectable label.

56. (amended) The method of claim 1, wherein said detection probe comprises at least one DTPA molecule wherein said multispecific molecule in said antigen-multispecific molecule-probe complex interacts with said diethylenetriaminepentaacetate (DTPA) molecule.